

REMARKS

Claims 1-6 are pending in the present application with claims 1-6 amended. Reexamination and reconsideration of the claims, as amended, are respectfully requested.

The Examiner requested that the current title be changed, because it is not descriptive. The current title “Electronic Musical Instrument” has been changed to “Electronic Musical Instrument Connected To Computer Keyboard.”

As requested by the Examiner, Applicant has amended the specification to correct a number of grammatical and typographical errors.

Applicant proposes to amend figs. 10-14 to correct the omission of reference numerals and has submitted corrected drawings pursuant to 37 C.F.R. § 1.121(d).

Applicant has amended claims 4 and 6 to correct a minor grammatical error.

The Examiner rejected claims 1-6 under 35 U.S.C. § 102(e) as being met by Eitaki (U.S. Patent No. 6,078,004). The Examiner also rejected claims 1-6 under 35 U.S.C. § 102(b) as being met by either Matsuda (U.S. Patent No. 5,756,915), Hiramatsu (U.S. Patent No. 5,389,729), Imaizumi (U.S. Patent No. 5,578,778) or Hirano (U.S. Patent No. 5,861,567). This rejection is respectfully traversed with respect to the claims as amended. Support for Applicant’s argument is detailed below.

The present invention is directed to an electronic musical instrument that allows a keyboard for a computer (the “computer keyboard”) to be connected to the instrument. In a conventional electronic musical instrument, the operating panel has a limited surface area. This space constraint places a limitation on the number of switches on the panel as well as on the size of the display device. As a result, a user who wants to perform a specific function must carry out a complicated procedure with the limited switches and display. In the present invention, the user can operate the computer keyboard, upon connection with the electronic musical instrument, to easily and simply input the various settings for the instrument.

Each of the independent claims 1-3 and 5 includes a recitation relating to connection terminal(s) to connect the computer keyboard with the electronic musical instrument and a recitation regarding a connection interface. In rejecting claims 1-6, the Examiner cited five prior art references as disclosing "the interconnection of a keyboard, a computer, an operation panel and a display." It is respectfully submitted that none of these references discloses or suggests a connection between a keyboard used for a computer and an electronic musical instrument.

Eitaki relates to an electronic musical instrument with a controllable auto-player function. The electronic musical instrument 100 is shown in Fig. 1. The instrument 100 has a keyboard 108, an operation panel 109 and a display 110. The illustration of the keyboard 108 in Fig. 1 is a musical keyboard with black and white keys. Fig. 1 does not disclose a computer keyboard connected to the electronic musical instrument, nor does the specification disclose or suggest any such connection. Therefore, the present invention is not anticipated by Eitaki.

Matsuda discloses a music performance data searching apparatus. This apparatus searches for a desired part of music performance data that is prepared in advance. Matsuda also discloses a music performance data replacing apparatus which replaces the searched data with replacement data. Both apparatuses are incorporated in an electronic musical instrument having a sequencer function (see Col. 9, lines 14-17 and Col. 16, lines 3-5). The electronic musical instrument includes a keyboard 18 that supplies music performance data and can be used as inputting means to enter the search data and/or replacement data (see Col. 10, lines 61-67 and Col. 16, lines 62-67). Nothing in the specification or the figures suggests that this keyboard is anything other than a musical keyboard. Because Matsuda fails to disclose or suggest a computer keyboard connected to an electronic musical instrument, it does not anticipate the present invention.

Hiramatsu relates to a tone signal generator with different types of input and output interfaces. A bi-directional serial communication means allows for the transmission and receipt of information from a personal computer. This is illustrated in Fig. 1. A serial interface 15

connects the tone signal generator unit 1 with a personal computer 3. A keyboard 5 is shown to be connected to the personal computer 3. The keyboard 5, however, is not directly connected to an electronic musical instrument. In contrast, the computer keyboard of the present invention is directly connected to an electronic musical instrument. Therefore, Hiramatsu does not disclose or suggest this inventive feature of the present invention.

Imaizumi relates to an electronic musical instrument with a registration function. The electronic musical instrument includes “a keyboard (KB) 1 for inputting tone pitch information, panel switches (PSW) 2 for inputting various kinds of panel information, a panel display 3 (PI) for displaying an input state of the various panel information from the panel switches 2, etc., a CPU 4 for controlling the operation of the whole electronic musical instrument” (Col. 2, line 62 to Col. 3, line 1). The main routine of the instrument essentially begins with key processing, “such as the detection of key operation upon depression of a key of the keyboard 1, and the tone generation according to the detected key operation” (Col. 4, lines 15-18). As with Eitaki and Matsuda, this keyboard is clearly a musical keyboard, and nothing in the specification suggests otherwise. Therefore, Imaizumi does not anticipate the present invention.

Finally, Hirano discloses a musical tone synthesis apparatus having a processor to synthesize a musical tone. In Fig. 1, a musical tone synthesis apparatus comprised of a general-purpose computer includes a microprocessor unit (MPU) 1 and a system timer 2. Furthermore, the MPU 1 executes application programs to, for example, synthesize sample wave forms to generate musical tones. The apparatus includes a keyboard 6. This keyboard is “an alphanumeric types used as an input for the personal computer.” (Col. 3, lines 17-19). Thus, like Hiramatsu, the keyboard in Hirano is connected to a personal computer and is not directly connected to an electronic musical instrument, as in the present invention.

In view of the foregoing, Applicant respectfully submits that the claims, as amended, are not met by Eitaki, Matsuda, Hiramatsu, Imaizumi or Hirano. Applicant respectfully submits that all of the pending claims in the present application are in condition for allowance.

Reexamination and reconsideration of the claims, as amended, are respectfully requested and an early allowance is solicited. If the Examiner feels that it would advance the prosecution of the application, it is respectfully requested that he telephone the undersigned attorney of record.

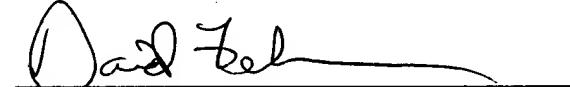
Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 39303.2012500 (25484.00796). However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

ELECTRONIC MUSICAL INSTRUMENT CONNECTED TO COMPUTER

KEYBOARD

Conventionally, an electronic musical instrument has several operating elements (operators) provided on its panel, and a user operates these operating elements to carry out various settings. A display device such as [an] a LCD (Liquid Crystal Display) is also provided on the panel, and the user refers to various information on the display device to perform operations. There is also known another type of electronic musical instrument which is adapted to have a dedicated controller connected thereto, and, in addition to operations on the panel, the controller is used to carry out various settings for the electronic musical instrument.

To attain the above object, the present invention further provides an electronic musical instrument comprising an operation panel that is operated by a [use] user, at least one connection terminal for connection with a keyboard for use in a computer, a connection interface for connecting the keyboard to the electronic musical instrument, and a replacing device that replaces operation information input from the operation panel by operation information input from the keyboard connected via the connection terminal and the connection interface.

Preferably, the electronic musical instrument according to the present invention further comprises a display device, and a second assignment device that assigns characters, symbols, or numerical values respectively to the keys of the keyboard connected to the electronic musical instrument, and wherein when any of the keys of the keyboard [is] are operated, the execution device causes the display device to display a character, a symbol, or a numerical value assigned to the operated key if the operation of the key is significant for a screen view currently displayed on the display, and execute one of the functions assigned to the operated key if the operation of the key is significant for the screen view currently displayed.

Preferably, the electronic musical instrument according to the present invention further comprises a display device, and a second assignment device that assigns characters, symbols, or numerical values respectively to the types of keys of the keyboard connected to the electronic musical instrument, and wherein when any of the types of keys of the keyboard [is] are operated, the execution device causes the display device to display a character, a symbol, or a numerical value assigned to the operated type of key if the operation of the type of key is significant for a screen view currently displayed on the display, and execute one of the functions assigned to the operated key if the operation of the type of key is significant for the screen view currently displayed.

FIG. 3 shows the exterior appearance of a back face of the electronic musical instrument. On the back face 300, there are provided a MIDI input terminal 301, a MIDI output terminal 302, a MIDI through terminal 303, a serial terminal 304, a host connection terminal 305, a type-A keyboard connection terminal 306, a type-B keyboard connection terminal 307, left and right audio signal output terminals 308, 309, and a power switch 310. The MIDI terminals 301 to 303 are used for connection with external MIDI equipment according to the MIDI standard. The serial terminal 304 is a serial interface such as RS-232C. The host connection terminal 305 is used for connection with an external host computer. The keyboard connection terminals 306, 307 are used for connection with PC keyboards so that various settings for the electronic musical instrument can be performed from the PC keyboards. Since there are several types of PC [keyboard] keyboards corresponding to the types of [PC] PCs (for example, for DOS/V machine, for MAC, for [UNIX]) UNIX), keyboard connection terminals corresponding to these PC keyboards are provided in the present embodiment.

FIG. 5 shows an example of the PC keyboard that is connected to the electronic musical instrument of the present embodiment. This PC keyboard 500 is comprised of a function key 501, ten key pad 502 (hereinafter referred to as “ten-key 2”), alphabet and other symbol keys 503, ten key pad 504 (hereinafter referred to as “ten-key 1”), edit key 505, cursor key 506, and operation key 507. In FIG. 5, a plurality of keys of the same kind are grouped and shown in a block. For example, the function key 501 is comprised of a plurality of function keys. The ten-key 2 is comprised of numeric keys arranged on the upper side of the alphabet and other symbol

keys. The edit key 505 is comprised of an insert key, a delete key, and so forth. The cursor key 506 is comprised of keys that instruct a cursor on [s] a display screen to move up and down as well as right and left. The operation key 507 is comprised of a space key, a control (CTRL) key, a shift (SHIFT) key, and so forth. The PC keyboard as shown in FIG. 5 is connected to one or more of the keyboard connection terminals 306, 307 in FIG. 3 or the connection terminals 402, 403 in FIG. 4, which are of the same type as the PC keyboard.

FIG. 7 shows an example of the procedure for specifying the key arrangement of PC keyboard to be connected. This procedure may be used instead of the procedure of FIG. 6. When the system switch 213 in FIG. 2 is turned on, a system menu is displayed on the display 204, and the procedure of FIG. 7 starts. First, in step 701, the function of specifying the key arrangement of PC keyboard is selected from the system menu displayed on the display 204, and the screen view of the display 204 is changed to a view for setting the PC keyboard. The view for setting the PC keyboard is in the form of a list of characters that can be entered. If another function is selected from the system menu, the operation moves to processing for performing the selected function.

Next, in step 803, a function module that is to be started in accordance with depression of the key is determined from the received position code of the key. The correspondence between key positions and function modules to be executed when the respective keys are depressed is defined by a module table. FIG 15B shows the format of the module table. The module table allows a function module number corresponding to the key to be identified by referring to the position code of the key as the relative address. The module number is used to discriminate each function module[:]. For example, a module number 0 denotes a function module VOICE for performing a voice selection operation, a module number 2 denotes a function module SONG for performing a song selection operation, and so forth. The step 803 thus discriminates the function module corresponding to the received position code with reference to the module table.

In the present invention, the term “electronic musical instrument” shall include so-called “tone generator box” (tone generating module), rhythm box (rhythm machine), sequencer, data

filer (that performs file management of tone color data and performance data), and “MIDI karaoke machine” which [have] has no keyboard, and “master keyboard” which consists solely of a keyboard.